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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/864,278	05/25/2001	Takayoshi Yamazaki	46156	1231

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WASHINGTON, DC 20036-3307

EXAMINER

MARKHAM, WESLEY D

ART UNIT	PAPER NUMBER
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1762

6

DATE MAILED: 06/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/864,278

Applicant(s)

YAMAZAKI ET AL.

Examiner

Wesley D Markham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) 5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 May 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) ✓
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1 – 4, drawn to a process for producing a weather resistant coating film, classified in class 427, subclass 160.
 - II. Claim 5, drawn to a weather resistant coating material comprising a binder and a curing agent, classified in class 525, subclass 123.
2. The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as product and process of use, respectively. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case, the product as claimed can be used in a materially different process of using that product, such as a process that does not include coating the material on an article and then drying the material to form a coating film (e.g., forming the material into a solid article, extruding the material into a sheet, or first hardening / drying the material and then laminating it onto an article).
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification and recognized divergent subject matter, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Mr. Paul White on 4/10/2002, a provisional election was made with traverse to prosecute the invention of Group I, Claims 1 – 4. Affirmation of this election must be made by applicant in replying to this Office Action. Claim 5 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.
5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Response to Amendment

6. Acknowledgement is made of applicant's preliminary amendment A, filed as paper #4 on 9/19/2001, in which a new, single paragraph, abstract of the disclosure was submitted. The aforementioned abstract is accepted by the examiner.

Information Disclosure Statement

7. The IDS filed by the applicant as paper #5 on 5/30/2002 is acknowledged by the examiner, and the references listed thereon have been considered as indicated on the attached copy of the PTO-1449 form.

Drawings

8. Acknowledgement is made of the formal drawings (6 sheets, 9 figures) filed by the applicant on 5/25/2001. The drawings are objected to because the titles of Figures 5 and 9 appear to contain typographical errors. Specifically, the title of Figure 5, "RELATION BETWEEN FUNCTIONAL GROUP CONCENTRATION AND GLOSS RETENTION AND GLOSS RETENTION", appears to unnecessarily repeat the phrase "AND GLOSS RETENTION", and the title of Figure 9, "RELATION BETWEEN ϵ_{dc} log τ ", appears to be missing the word "and" between " ϵ_{dc} " and "log τ ". A proposed drawing correction or corrected drawings are required in reply to the Office Action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

9. The use of the trademark ACRIT (page 23, lines 9 and 21, of the specification) has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology. Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner that might adversely affect their validity as trademarks.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 1 – 4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
12. Regarding independent Claim 1 (from which Claims 2 – 4 depend), the claim requires, in part, "A process for producing a weather resistant coating film which can keep a gloss retention of 80% or more for 1,000 hours or more in an accelerated weathering test by a carbon sunshine weather-o-meter..." However, after reviewing the specification of the instant application, including the claims, the examiner notes that there is no description of the exposure conditions utilized by the applicant in performing the claimed "accelerated weathering test by a carbon sunshine weather-o-meter". Since the gloss retention of a coating (i.e., the percent of gloss retained by the coating after a certain number of hours in an accelerated weathering test) would clearly depend on the exposure conditions used in the test, and these conditions are not disclosed by the applicant, the scope of Claims 1 – 4 is vague and indefinite. In other words, one skilled in the art would not be reasonably apprised of the scope of Claims 1 – 4 because the claims are drawn to producing a weather resistant coating film which can keep a gloss retention of 80% or more for 1,000 hours or more in an accelerated weathering test, and the conditions of the weathering test that is utilized to determine gloss retention are not disclosed.

13. Also regarding independent Claim 1, the claim recites a specific mathematical expression relating " ϵ_{dc} " and " τ ", wherein "... τ is the time (hour) of exposure in the accelerated weathering test that shows a gloss retention of 80% or more which is determined according to the requirements of intended uses..." In other words, the mathematical expression involving τ recited in Claim 1, and therefore the scope of Claims 1 – 4, depends on the intended use of the weather resistant coating film. This renders the scope of Claims 1 – 4 vague and indefinite. Specifically, one skilled in the art would not be reasonably apprised of the scope of Claims 1 – 4 (i.e., would not recognize when he/she would be infringing Claims 1 – 4) because, depending on the value of τ chosen, exactly the same coated film and/or process for producing the coated film could fall within the scope of the applicant's claims in some situations and not fall within the scope of the applicant's claims in other situations (i.e., depending on the use of the coated film desired by one skilled in the art).

Claim Observations

14. Regarding independent Claim 1, the examiner notes that the claim recites, in part, "...the residual group of the ultraviolet absorptive compound in the dry coating film..." The examiner has reasonably interpreted "the residual group of the ultraviolet absorptive compound" to be equivalent to the portion(s) of the ultraviolet absorptive compound that is/are present in the dry coating film.
15. Regarding independent Claim 1, the examiner notes that the claim recites, in part, "...may satisfy the expression

$\epsilon_{dc} \geq 129 \cdot \log \tau - 367$ ". The examiner has broadly but reasonably interpreted this limitation such that the claim does not require that the aforementioned expression be satisfied (i.e., the expression "may" be satisfied, or it may not be satisfied – the applicant's claims do not require that the expression must be satisfied).

16. Regarding Claim 4, the examiner notes that the applicant recites "benzotriazole type compounds" and "benzophenone type compounds". These limitations are sufficiently definite under 35 U.S.C. 112, second paragraph, because it is clear from the applicant's specification that the UV-absorptive compounds do not have to be benzotriazole itself or benzophenone itself, and "benzotriazole type compounds" and "benzophenone type compounds" are simply UV-absorptive compounds that have structures based on benzotriazole or benzophenone, respectively (see, for example, page 8, line 11 – page 9, line 10, of the applicant's specification).

Claim Rejections - 35 USC § 102

17. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

18. Claims 1 – 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Yanauchi et al. (EP 0 979 836 A1).

19. Regarding independent Claim 1 (from which Claims 2 – 4 depend), Yanauchi et al. teaches a process for producing a weather resistant coating film (Abstract and paragraph [0038]) which can keep a gloss retention of 80% or more for 1,000 hours or more in an accelerated weathering test by a carbon sunshine weather-o-meter (paragraph [0050] and Table 5, "Gloss retention after acceleration (%)", for Examples 1 – 8) by preparing a weather resistant coating material comprising a binder (i.e., the acrylic polyol binder system of Yanauchi et al.) (paragraphs [0024] – [0028], [0032], [0033], [0035], and Example 9) and a curing agent (i.e., the isocyanate system of Yanauchi et al.) (Abstract, paragraphs [0009], [0015] – [0023], and Examples 1 – 8) as main constituents (Example 10 and paragraphs [0050] – [0051], which show the acrylic polyol paint binder system mixed with the isocyanate system) and coating an article to be coated with the coating material, followed by drying (paragraphs [0038], [0050], and [0051]), the process comprising chemically bonding an ultraviolet (UV) absorptive compound to either or both of the binder and the curing agent constituting the coating material (paragraphs [0008], [0009], [0016], [0023], [0028], Examples 1 – 8 (which show a benzotriazole type UV absorptive compound being chemically bonded to the isocyanate curing agent system), and Example 9 (which shows a polymerizable benzotriazole type UV absorptive compound being copolymerized with acrylates to form the acrylic polyol binder system)), and coating the coating material on the article, followed by drying, so that the thickness of the dry coated film is as desired (i.e., becomes "d") (paragraphs [0038], [0050], and [0051]). Yanauchi et al. does not explicitly teach that the UV

absorptive compound has a maximum value of its light absorption spectrum in a wavelength region shorter than 380 nm and has a molecular extinction coefficient at the absorption maximum wavelength of 5,000 to 50,000. However, the benzotriazole type and benzophenone type UV absorptive compounds explicitly taught by Yanauchi et al. (see paragraphs [0016], [0028], and Examples 1 and 9) are identical to the UV absorptive compounds claimed and disclosed by the applicant (see, for example, Claim 4 and page 8, line 11 – page 9, line 10, of the applicant's specification). Since the light absorption spectrum and the molecular extinction coefficient of a UV absorptive compound is simply a function of (i.e., determined by) the structure of the UV absorptive compound, and the UV absorptive compounds taught by Yanauchi et al. are identical to the UV absorptive compounds of the applicant, the UV absorptive compounds of Yanauchi et al. would have inherently had a maximum value of their light absorption spectrum in a wavelength region shorter than 380 nm and molecular extinction coefficients at the absorption maximum wavelength of 5,000 to 50,000, as claimed by the applicant. Further, Yanauchi et al. does not explicitly teach that the coating material is designed such that, when the coating material is coated on an article and dried, the concentration (mol/L) of the residual group of the UV absorptive compound in the dry coating film may satisfy the expression " $\epsilon d c \geq 129 \cdot \log \tau - 367$ ", wherein ϵ is the molecular extinction coefficient of the residual group in the dry film, d is the thickness (cm) of the dry film when in use, and τ is the time (hour) of exposure in the accelerated weathering test that shows a gloss retention of 80% or more which

is determined according to the requirements of intended uses. However, as set forth above in paragraph 15, independent Claim 1 has been interpreted such that the claim does not require that the aforementioned mathematical expression be satisfied (i.e., the expression "may" be satisfied, or it may not be satisfied – the applicant's claims do not require that the expression must be satisfied). As such, this entire limitation is optional, and Yanauchi et al. teaches all the limitations of the applicant's claim. Further, the examiner notes that, even if this limitation was required by the applicant's claim, Yanauchi et al. would still teach all the limitations of the claim. For example, τ is the time (hour) of exposure in the accelerated weathering test that shows a gloss retention of 80% or more which is determined according to the requirements of intended uses. In other words, τ can be any value selected by the purveyor in the art, depending on the specific application that the purveyor in the art intends to use the coating film for. Since the dry coating film of Yanauchi et al. clearly contains a UV absorptive compound (i.e., having an extinction coefficient " ϵ " and a concentration in the film " c ") and has a thickness " d ", the quantity " ϵdc " in Yanauchi et al., though not explicitly specified, exists, and a value of " τ " can always be chosen so that the quantity " ϵdc " (i.e., a positive number) in Yanauchi et al. is greater than or equal to the quantity " $129 \cdot \log \tau - 367$ ", as recited in the applicant's claims.

20. Yanauchi et al. also teaches all the limitations of Claims 2 – 4 as set forth above in paragraph 19 and below, including a process wherein:

- Claim 2: The binder (i.e., the acrylic polyol system of Yanauchi et al.) to which the UV absorptive compound has been bonded is a resin obtained by copolymerizing a UV absorptive compound having a polymerizable vinyl group with another monomer having a polymerizable vinyl group (paragraphs [0025] – [0028], [0033], and Example 9).
- Claim 3: The curing agent (i.e., the isocyanate system of Yanauchi et al.) to which the UV absorptive compound has been bonded is a curing agent which comprises as an essential constituent an isocyanate compound containing residual isocyanate groups obtained by reacting a UV absorptive compound having an active hydrogen with a part of the isocyanate groups of an isocyanate prepolymer and/or monomer each having at least two free isocyanate groups and further comprises, according to necessity, an isocyanate prepolymer (Abstract, paragraphs [0009] and [0015] – [0023], and Examples 1 – 8).
- Claim 4: The UV absorptive compound is at least one compound selected from the group consisting of benzotriazole type compounds and benzophenone type compounds (paragraphs [0016] and [0028], and Examples 1 – 9).

Double Patenting

21. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers

any new and useful process ... may obtain a patent therefor ..." (Emphasis added).

Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

22. A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.
23. Claims 1 – 4 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of Claims 1 – 4 of co-pending published Application No. US 2003/0072871 A1 (corresponding to U.S. Application Serial No. 10/173,781). This is a provisional double patenting rejection since the conflicting claims have not in fact been patented. The examiner notes that U.S. Application Serial No. 10/173,781 is a divisional application of the instant application, and the provisional statutory double patenting rejection of Claims 1 – 4 can be overcome by canceling Claims 1 – 4 in co-pending U.S. Application Serial No. 10/173,781.

Conclusion

The examiner notes that the mathematical expression recited by the applicant in Claim 1 appears to simply state, albeit in quantitative terms, that, when high gloss retention / weather resistance is desired (i.e., τ is chosen to be relatively large), the

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concentration of the UV absorptive compound in the film (i.e., c) and/or the film thickness (i.e., d) should also be relatively large (i.e., increased). This theory is well-known in the art of UV protective materials, as evidenced by Moriya et al. (USPN 5,132,164) (Col.4, lines 33 – 42, and Col.5, lines 37 – 59) and Liebler et al. (USPN 4,576,870) (Col.4, lines 19 – 32).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D Markham whose telephone number is (703) 308-7557. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

WDM

WDM
June 25, 2003

Wesley D Markham
Examiner
Art Unit 1762



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